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UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
WASHINGTON, D. C.
H. H. BENNETT, CHIEF

Jon Ram
ground water
(I)

**NORTH APPALACHIAN EXPERIMENTAL WATERSHED
GROUND WATER GRAPHS
1936-37**

Prepared by

**W. D. Potter, Associate Hydraulic Engineer
and
Merle V. Baker, Assistant Geologist**

**SECTION OF WATERSHED AND HYDROLOGIC STUDIES
C. E. Ramser, Section Head**

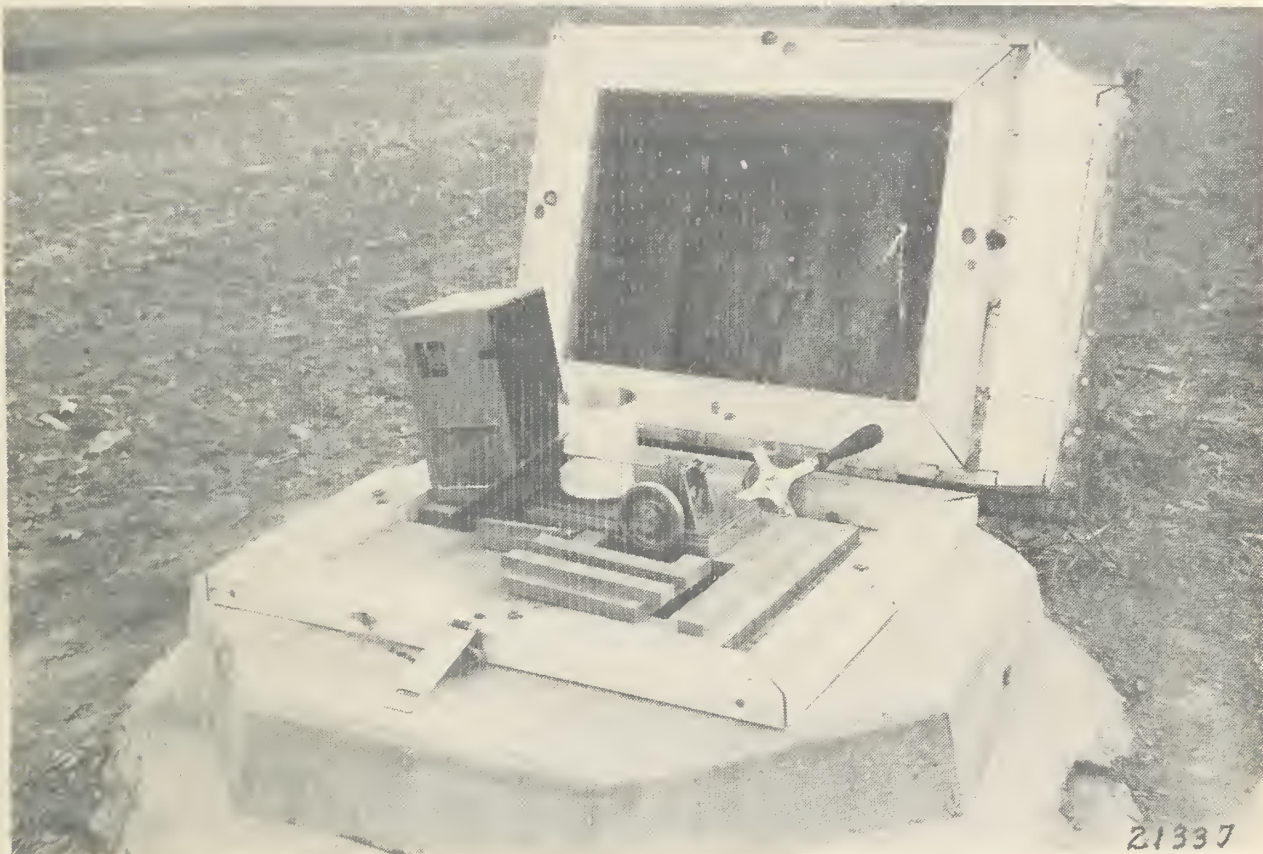
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NORTH APPALACHIAN EXPERIMENTAL WATERSHED
GROUND WATER GRAPHS
1936-37

The North Appalachian Experimental Watershed is a cooperative research project of the Soil Conservation Service and the Ohio Agricultural Experiment Station. It comprises some 5,000 acres of rolling hills, the average relief being approximately 300 feet. A geological survey of the watershed has shown it to be an eroded peneplane consisting mainly of alternate and nearly horizontal strata of limestone, sandstone, and shale, interspersed by beds of impervious fire-clay and covered by a soil mantle of from 4 to 5 feet in thickness. Each layer of fire-clay supports a perched water table either wholly or partially separated from each other and discharging at the outcrops of the impervious strata through the overlying soil mantle, either as springs or seeps or by percolation, to the water table below.

Thirty-six observation wells have been dug within the project, an attempt having been made to secure several representative wells for each principal ground-water horizon. All wells, with the exception of those located in valley bottoms, were dug to the first impervious strata, the average depth being approximately 30-40 feet. These wells were hand dug with an unlined diameter of 4 feet and a finished diameter of 28-36 inches. Field stones used as lining were free laid to the base of the weathered zone and from this point to the surface were laid in mortar. A reinforced concrete welltop, having embedded in it a T-bar measuring point, was installed in each well.

Manual ground-water measurements were begun at completed wells



21337

Groundwater observation well #109 showing FW-1 recorder used to obtain continuous records and T-bar measuring point and tape used to check readings.

in May, 1936. These measurements were made at intervals of from 1 to 15 days from May 1936 until February 1937, and daily measurements were taken on all wells from February 1937 until the time of installation of automatic stage recorders. The installation of these recorders, which are Friez FW-1 vertical drum type, was begun in April 1937 and continued until at the present time all wells are so equipped.

The following graphs show the daily elevation of the water table at 35 of the 36* observation wells for the water year 1936-37:

*Well No. 157 was not completed until January 1938.

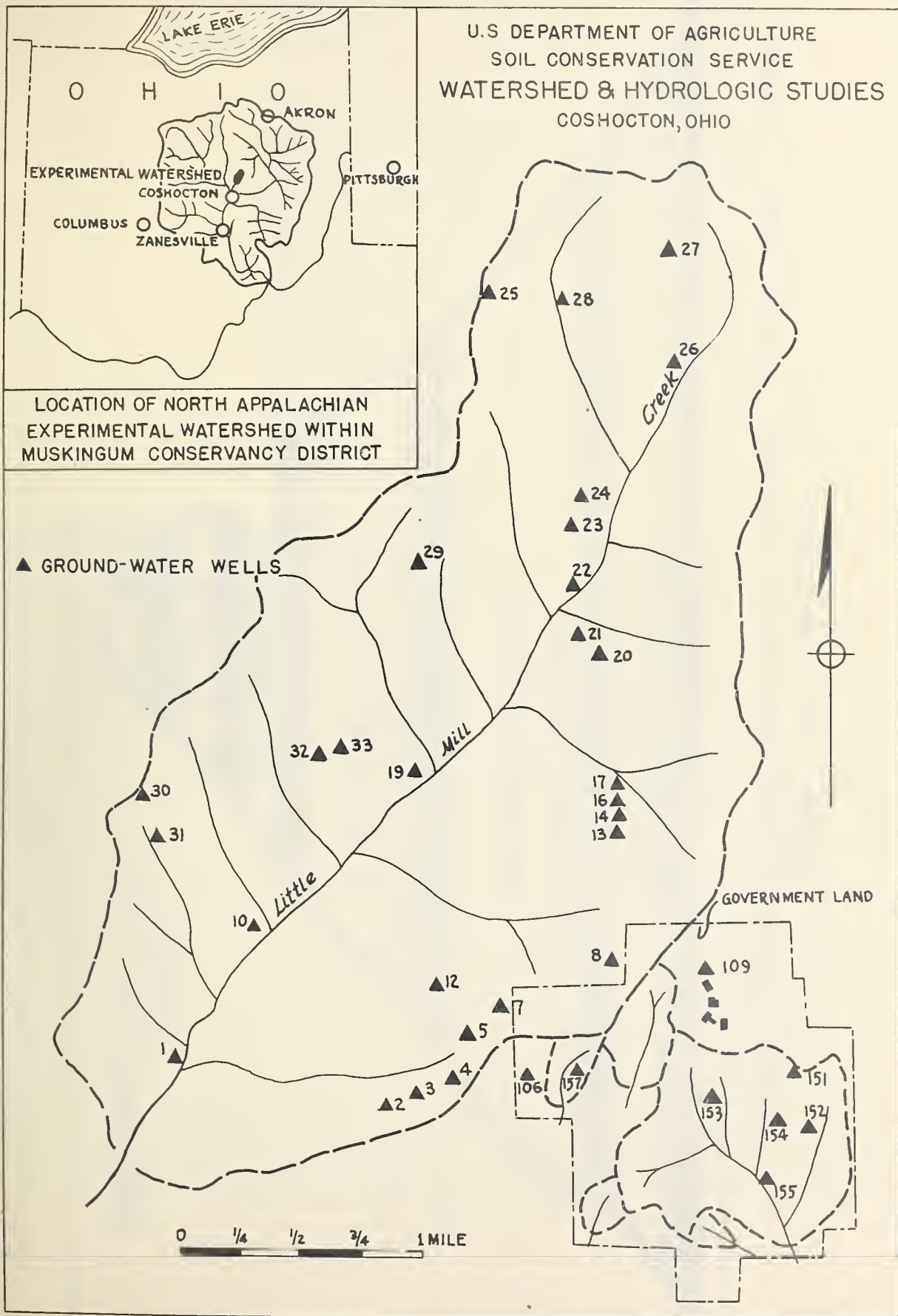
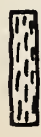
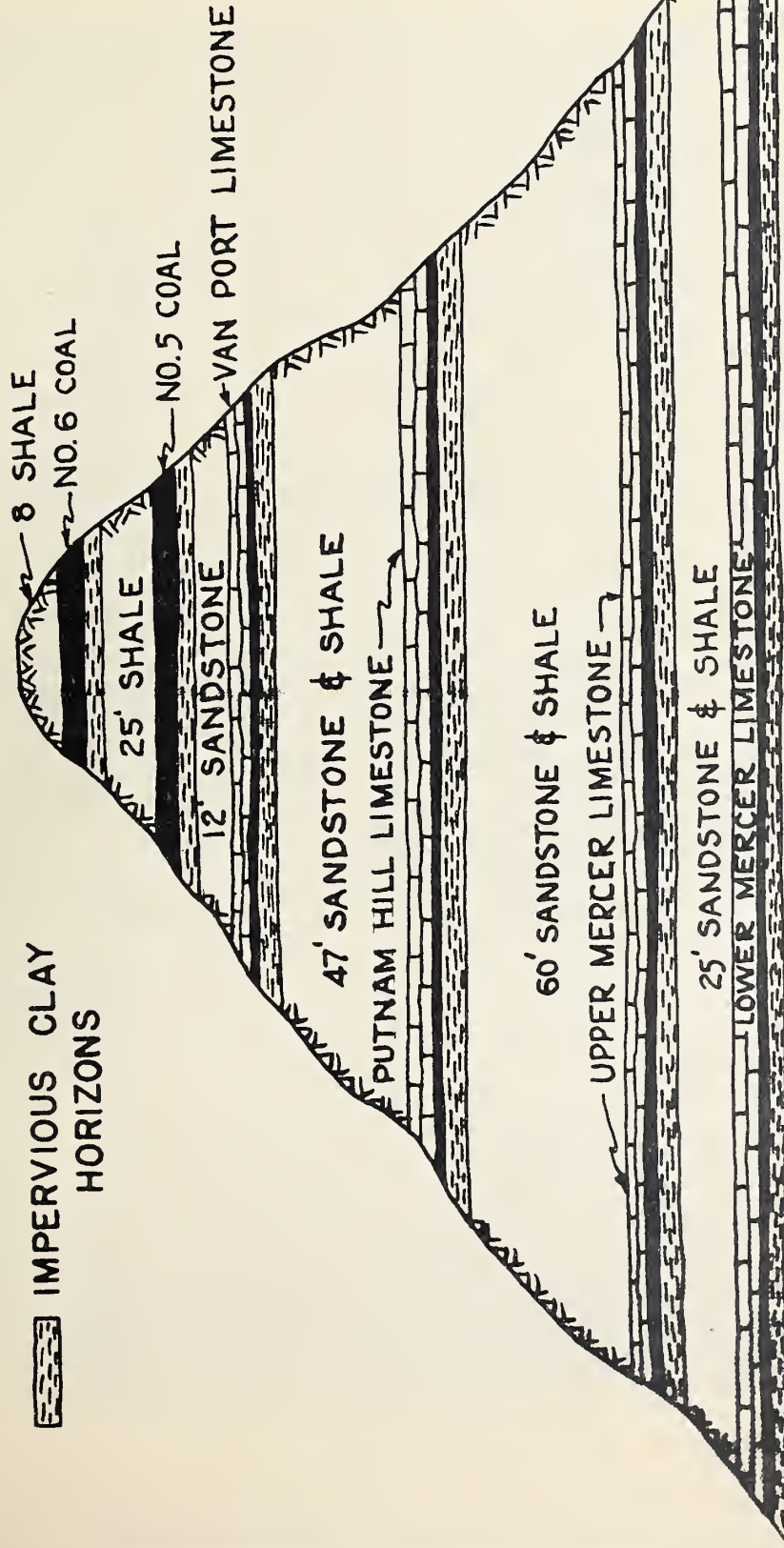
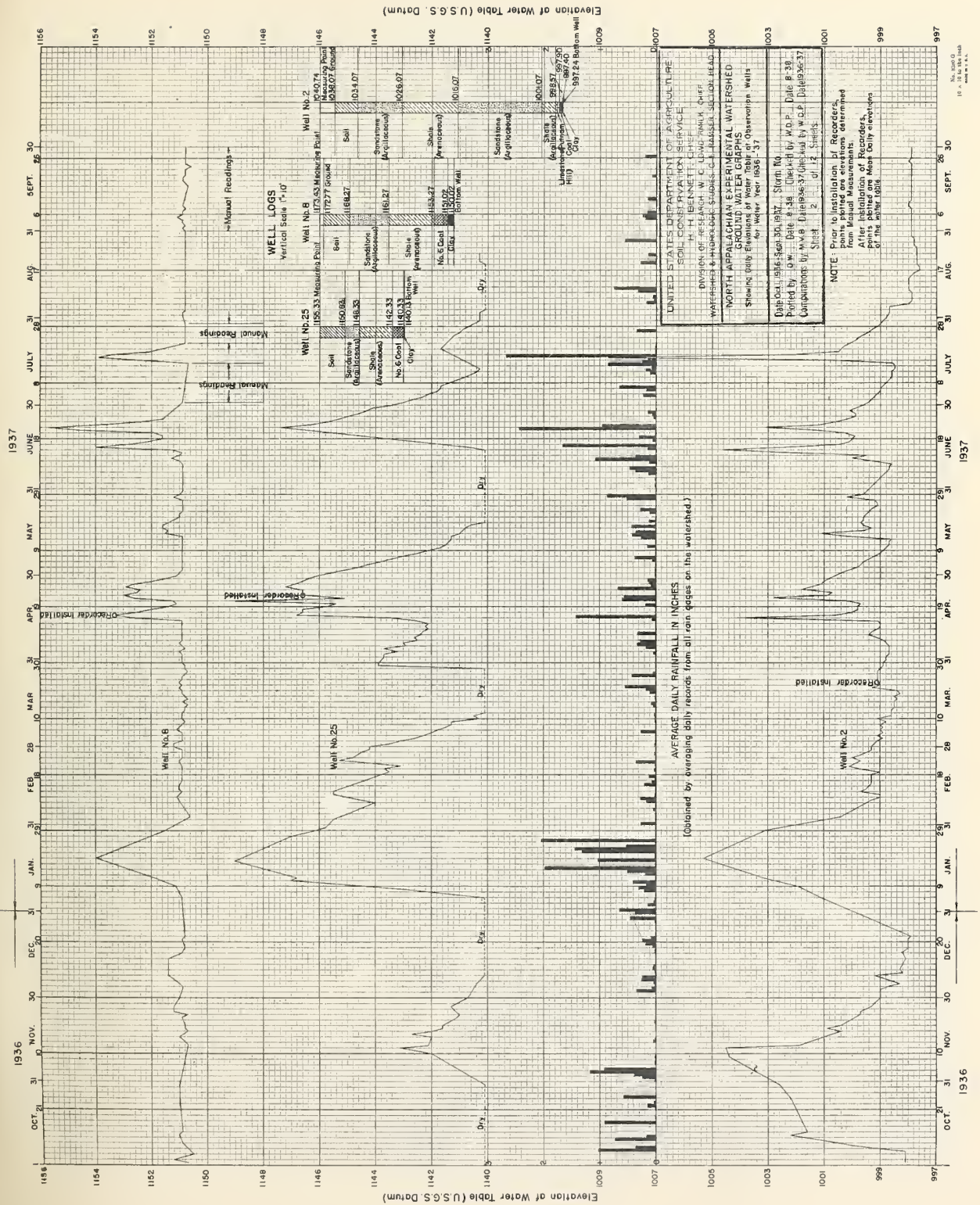


FIG 1-A NORTH APPALACHIAN EXPERIMENTAL WATERSHED

 IMPERVIOUS CLAY
HORIZONS



TYPICAL CROSS-SECTION OF A HILL, SHOWING DISTRIBUTION OF IMPER-
VIOUS CLAY HORIZONS

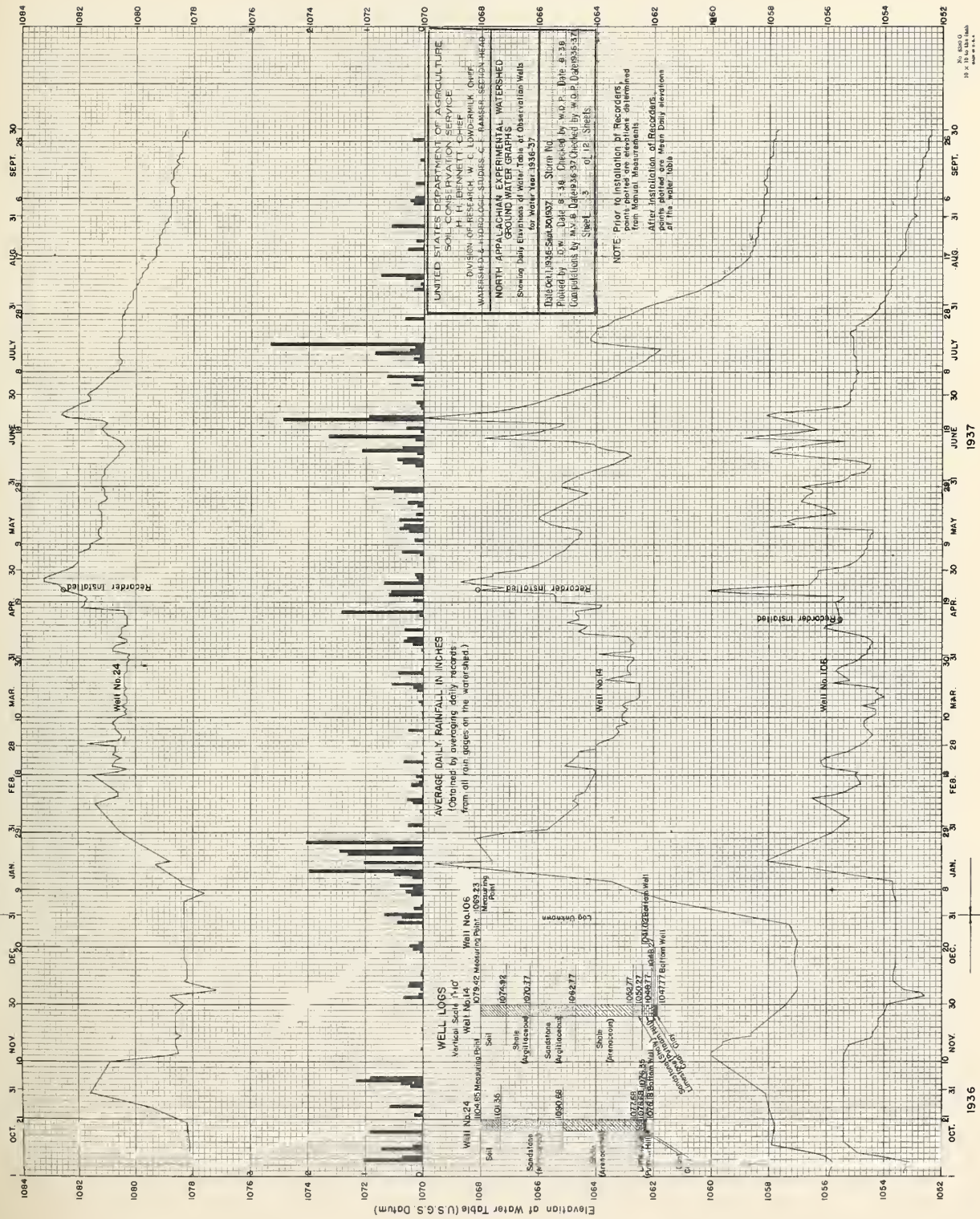


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1936

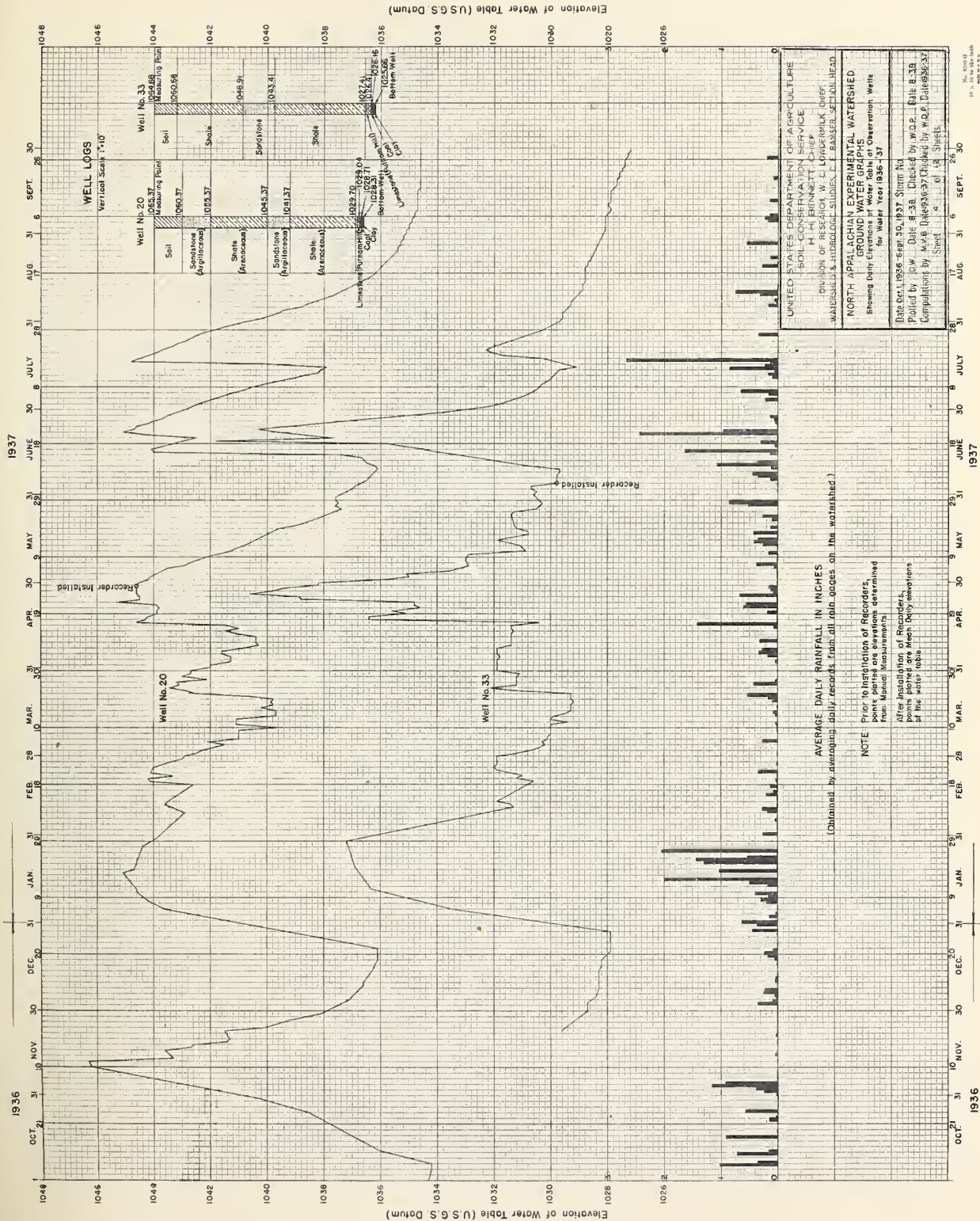
1937



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SOIL CONSERVATION SERVICE
H. H. BENNETT, CHIEF
DIVISION OF RESEARCH, W. C. LOWE-WILSON, CHIEF
WATERHOLE & IRRIGATION, SOLIDUS C. F. RANNEY, SECTION HEAD
NORTH APACHEAN EXPERIMENTAL WATERSHED
GROUND WATER GRAPHS
Showing Daily Elevations of Water Table of Observation Wells
for Water Year 1936-37
Date: July 1936, Station 1037, Stump No.
Plotted by L.W. Date: 8-38, Checked by W.O.P. Date: 8-38
Comparisons by W.C. Date: 8-37, Checked by W.O.P. Date: 8-37
Sheet 3 of 12 Sheets

NOTE: After installation of Recorders points plotted are Mean Daily elevations at the water table.

U.S. GEO. SURV.
1936

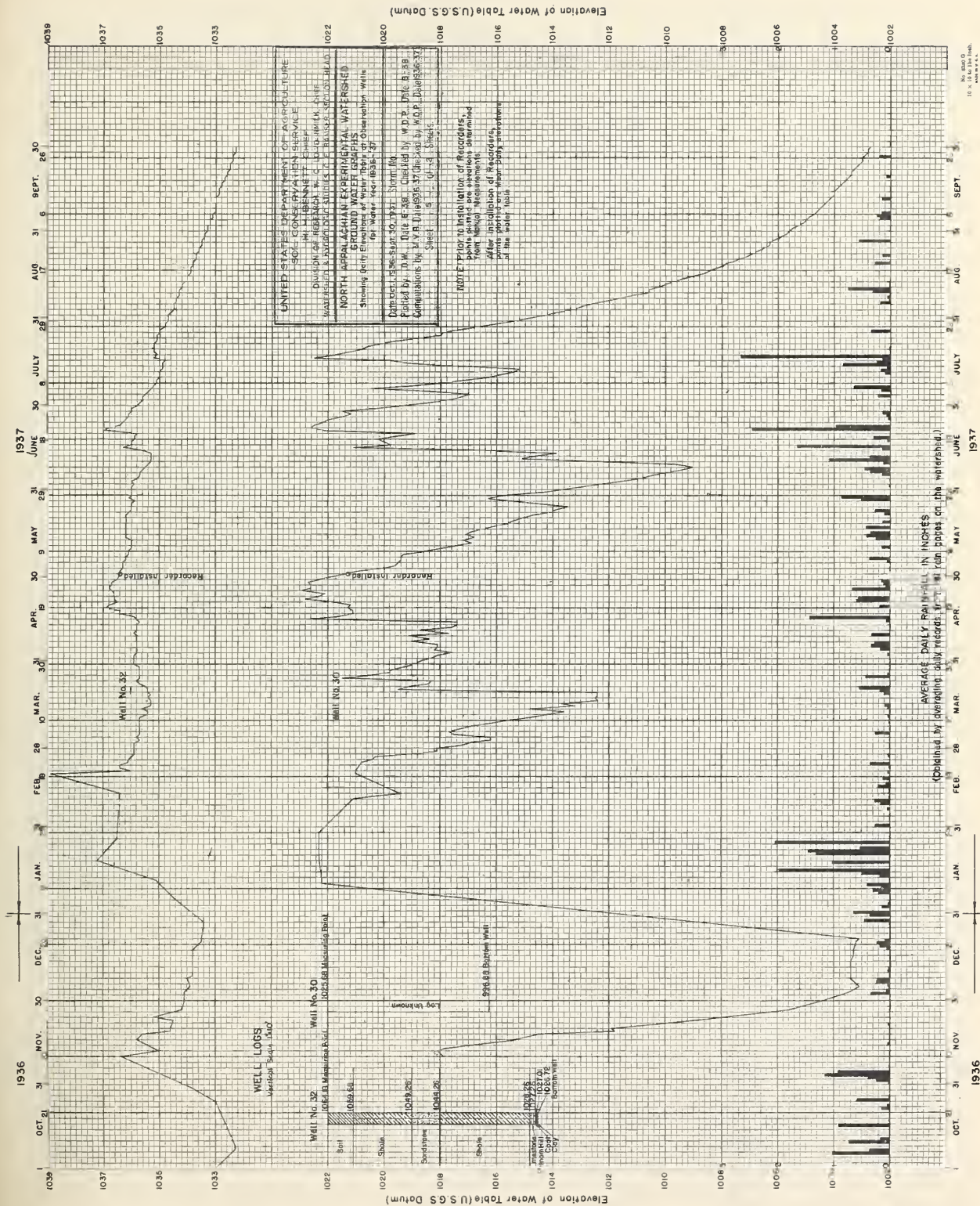


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H. M. BENNETT, CHIEF
DIVISION OF RESEARCH, W. C. LOWMEYER, DEPT.
WATERFIELD & HYDROLOGIC STUDIES, C. E. BAUSER, SEMI-HEAD

NORTH APALACHIAN EXPERIMENTAL
GROUND WATER PLOTS
Showing Daily Elevation of Water Table at Observation Wells
for Water Year 1936-37

Date Oct. 1, 1936 - Sept. 30, 1937 Storm No.
Plotted by D.W. Date 8-3-8 Checked by W.D.P. Date 8-3-8
Computations by M.W.B. Date 9-3-37 Checked by W.D.P. Date 9-3-37
Sheet 4 of 12 Sheets

No. 1000 Q
A 10 to the inch
width 6.6



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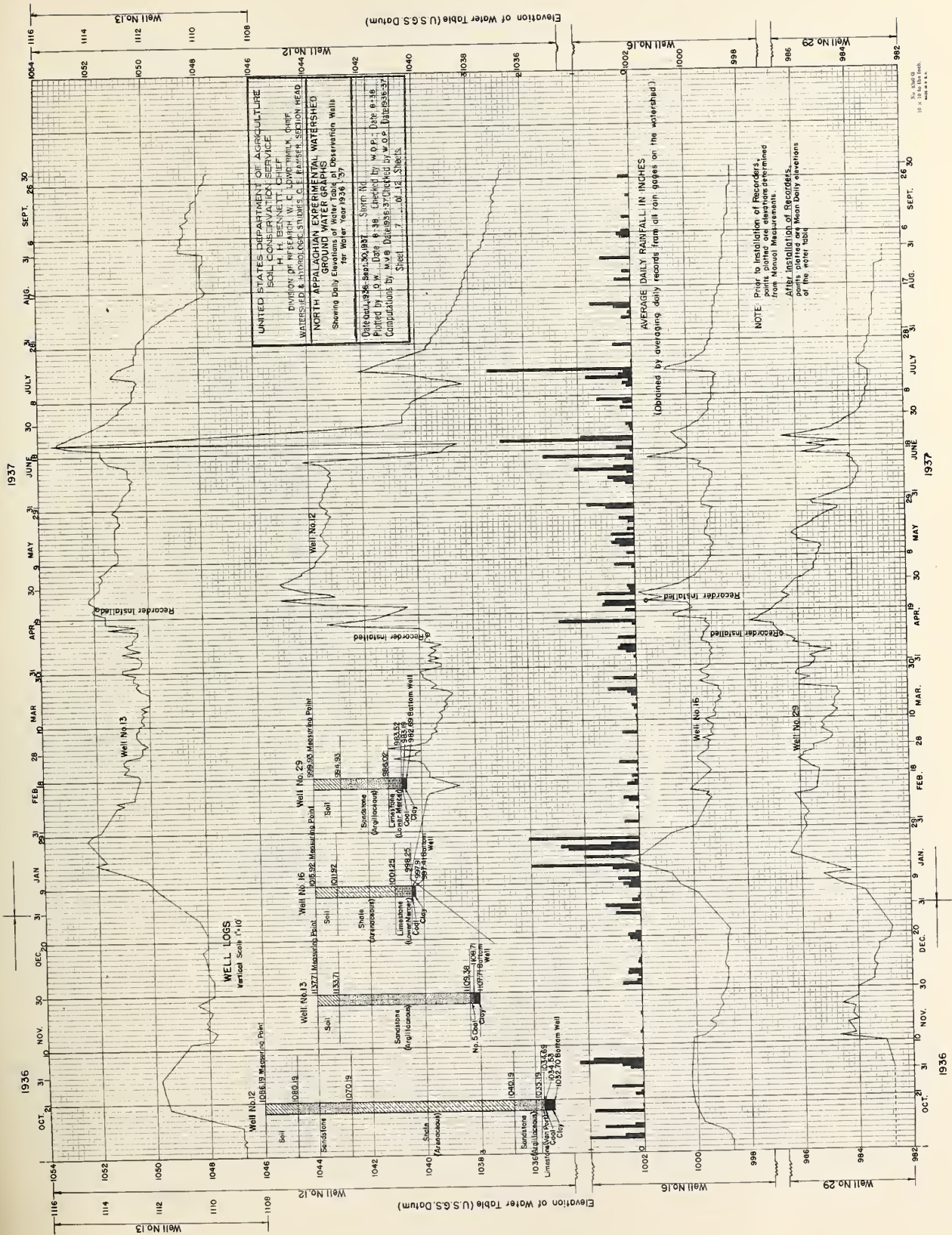
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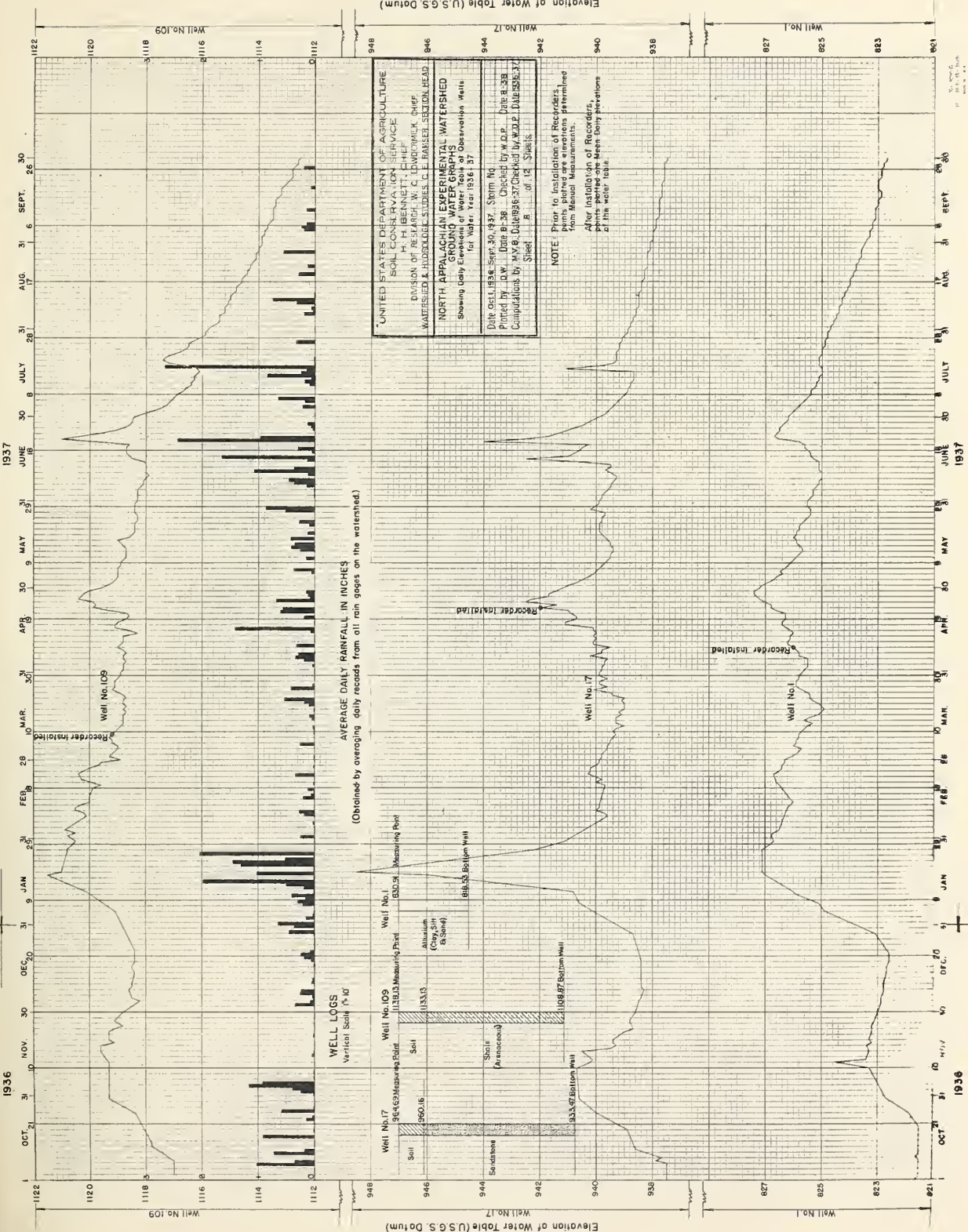
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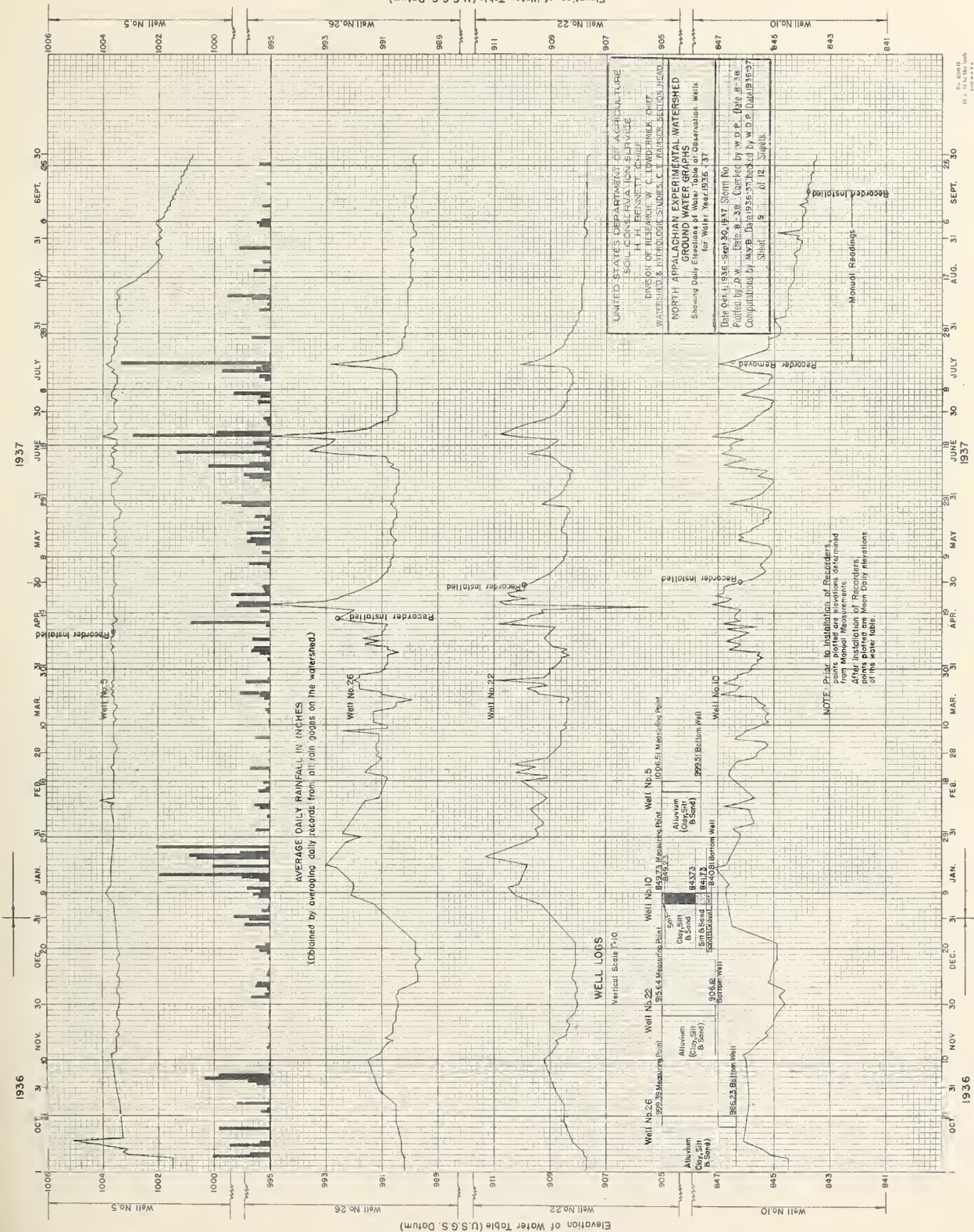
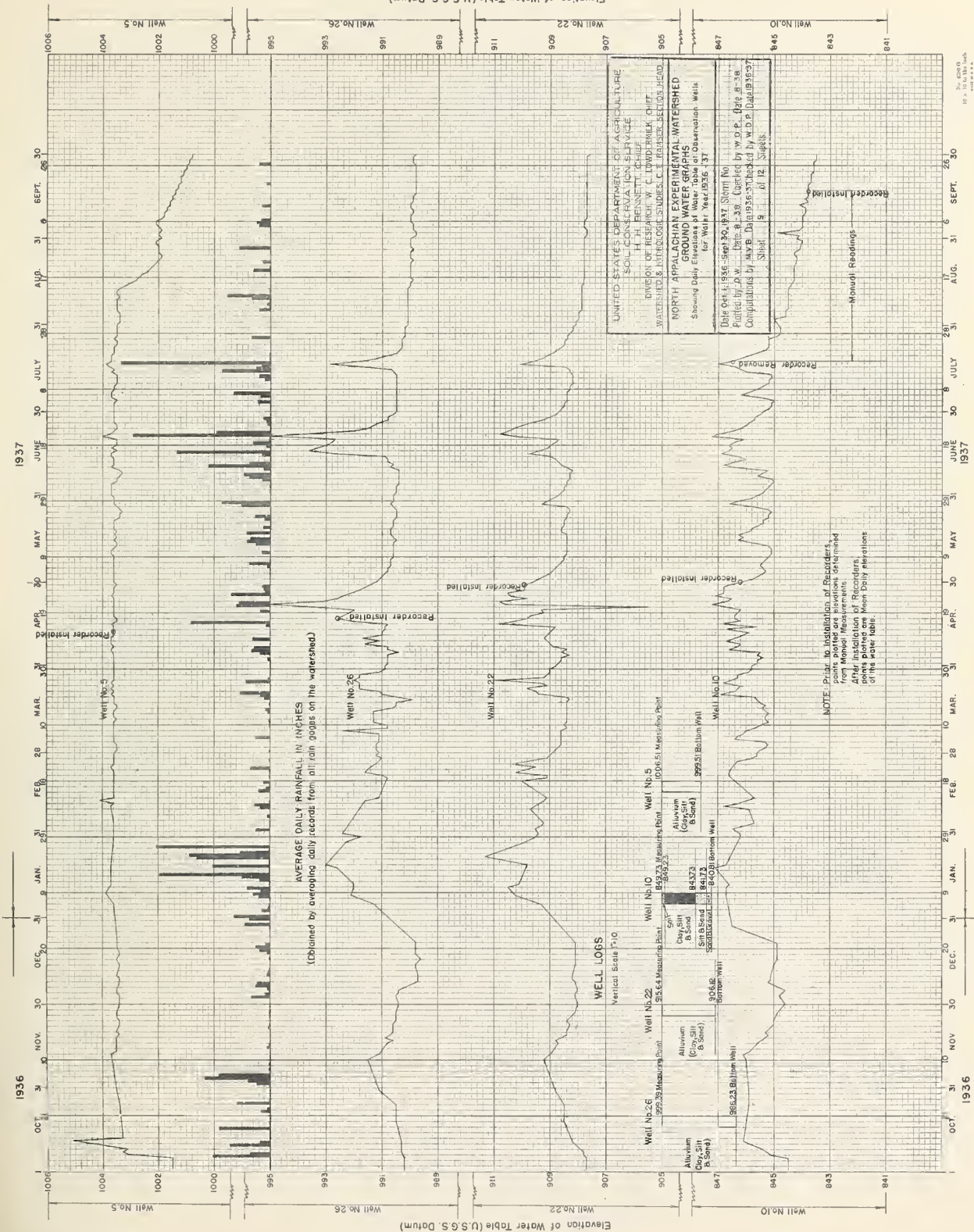
1605

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1937

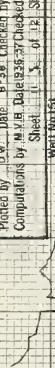
JUNE 31 JULY 31 AUG 31 SEPT 30

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NORTH APPALACHIAN EXPERIMENTAL WATERSHED
GROUND WATER GRAPHS
Showing Daily Elevation of Water Table in Observation Wells
for Water Year 1936-37

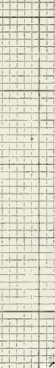
Date on 1/19/36 from 20,000 ft. Storm No.
Plotted by P. W. Date 8-3-36 Checked by W. D. P. Date 8-3-36
Computations by M. V. B. Date 12-25-37 Checked by W. D. P. Date 12-25-37
Sheet 11 of 12 Sheets

Well No. 151
1098
1096



Well No. 151

Well No. 154
989
987
986
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924
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920



Well No. 154

Well No. 155
926
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920

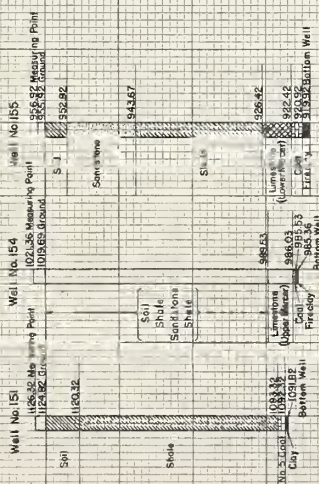


Well No. 155

NOTE: Prior to installation of Recorders, points plotted are elevations determined from Manual Measurements. After installation of Recorders, points plotted are Near-daily elevations of the water table.

WELL LOGS

Vertical Scale 7:0

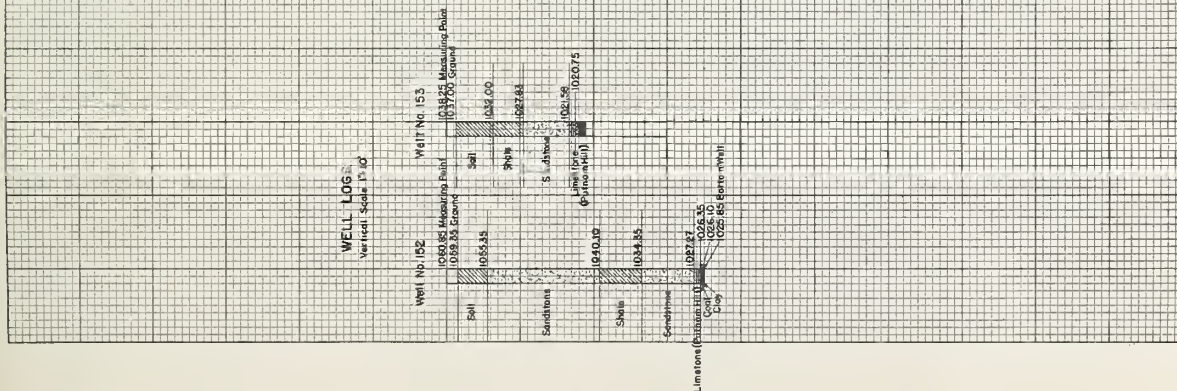


AVERAGE DAILY RAINFALL IN INCHES
Obtained by averaging daily records from all rain gages in the watershed.

1937
JUNE 31 JULY 31 AUG 31 SEPT 30

NO. 1000-0
10 x 10 in. 1000-0

1937

JUNE 31
JULY 31
AUG. 17
SEPT. 30

Vertical Scale 1" = 10'

Well No. 152

Well No. 153

0160.85 Measuring Point
(0.99.55 Ground)

0185.25 Measuring Point
(0.97.00 Ground)

0155.15

0183.00

0153.15

0182.75

0152.75

0182.50

0152.25

0182.25

0151.75

0182.00

0151.25

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